

REMARKS

Claims 1, 2, 4-18, 22-24, 28-50 and 53-56 are now pending in this application. Claims 3 and 27 have been cancelled by this Amendment. Claims 1, 22 and 57 have been amended by this Amendment.

The Office Action dated June 5, 2002 rejected claims 1-9, 15-18 and 27 as being anticipated by U.S. Patent No. 5,828,342 to Hayes et al; rejected claims 22-24 as being anticipated by U.S. Patent No. 6,259,606 to Bunert; and rejected claims 1-18, 22-24, 27-50 and 53-58 as being anticipated or rendered obvious by U.S. Patent No. 6,232,924 to Winstead et al. in view of U.S. Patent No. 5,907,447 to Tuttle et al.

Hayes et al

The grounds for the rejection of claims 1-9, 15-18 and 27 as being anticipated by U.S. Patent No. 5,828,342 to Hayes et al is set forth in part 4 on page 3 of the Office Action. The rejection relies upon the printed monopole antenna embodiment shown in Figs. 1-3 of the patent (for the sake of simplicity, this embodiment is hereafter referred to simply as "Hayes"). Applicants respectfully submit that the rejection is improper and should be withdrawn because Hayes does not include each and every one of the combination of features recited in claims 1-9, 15-18 and 27.

For example, claims 3 and 27 recited the feature (now in amended claim 1) that the flexible member in the antenna assembly is generally flat and planar. This feature advantageously increases the volume available for the antenna within the flexible member when compared to a monopole antenna, and thereby

improves the performance of the antenna. (See, for example, page 6, lines 8-12, of the original specification.)

The anticipation rejection refers to Fig. 2 of Hayes for the feature of a generally flat and planar flexible member recited in original claims 3 and 27. However, Fig. 2 of Hayes shows a side view of printed circuit board 12. Although printed circuit board 12 is flat and planar, antenna 10 is in the conventional pole shape of a monopole antenna after it has been overmolded. See Fig. 3 of the Hayes et al patent and, for a perspective view of a monopole antenna, see Fig. 1 of U.S. Patent No. 5,231,412, discussed at col. 1, lines 16-26, of the Hayes et al patent.

Applicants have also amended independent claim 1 to include the feature that the flexible member is generally tongue-shaped. (See member 100 in Fig. 1) The flexible member in Hayes is not generally tongue-shaped and thus amended claim 1 is not anticipated by Hayes for this reason as well. Each one of claims 2, 4-9, and 15-18 is dependent on amended claim 1 and is thus not anticipated by Hayes for at least the same reasons claim 1.

Claim 6

Claim 6 is dependent on claim 1 and further recites the feature that the substrate material comprises an aperture. The anticipation rejection does not even mention, much less address, this feature. Applicants cannot find any indication that the substrate in Fig. 1 of Hayes comprises an aperture. Applicants therefore submit that claim 6 is allowable for this additional reason.

Claim 7

Applicant respectfully submits that dependent claim 7 is allowable over the applied references irrespective of the amendments to claim 1. Claim 7 recites the further feature that the conductive element in the antenna assembly is disposed "between the substrate and a second substrate material." The anticipation rejection does not even mention, much less address, this feature. Applicants cannot find any indication that conductive element 18 in Hayes is disposed between the substrate and a second substrate material. Applicants therefore submit that claim 7 is allowable for this additional reason.

Winstead et al

The grounds for the rejection of claims 1-12, 15-18, 22-24, 27-34, 43-50 and 53-58 as being anticipated by U.S. Patent No. 6,232,924 to Winstead et al is set forth in part 6 on pages 4-5 of the Office Action. The rejection relies upon the strip antenna embodiment shown in Figs. 6 and 7 of the patent (for the sake of simplicity, this embodiment is hereafter referred to simply as "Winstead"). Applicants respectfully submit that, as amended, the claims are not anticipated by Winstead.

As noted above in the remarks on Hayes, independent claims 1, 22 and 57 have been amended to require that the flexible member is "tongue-shaped". Although the flexible member in Winstead is flat, it is narrow and elongated and is not tongue-shaped. Therefore, the amended claims are not anticipated by Winstead at least for this reason.

Independent claims 1 and 57 have also been amended to require that the flexible member protrudes "at a fixed position" from a surface of the handheld

telecommunication apparatus. Although biased to a position where it is out of alignment with the flip cover, the strip antenna in Winstead is rotatable about the same axis as the flip cover. Therefore, the amended claims are not anticipated by Winstead at least for this reason.

Claims 53-56

Each one of newly added claims 53-56 are dependent on claim 24 and recites an additional feature of the overmoulding process recited in claim 24. The rejection does not attempt to point out how Winstead anticipates the features recited in dependent claims 53-56. In addition to the reasons set forth for the independent claims, applicants respectfully submit that each one of dependent claims 53-56 is allowable over Winstead because of the additional features recited therein.

Bunert

The grounds for the rejection of claims 22-24 as being anticipated by U.S. Patent No. 6,259,606 to Bunert is set forth in part 5 on page 4 of the Office Action. The rejection relies upon the housing for the electronic circuit of an electronic card shown in Fig. 1 of the patent (for the sake of simplicity, this housing is hereafter referred to simply as "Bunert"). Applicants respectfully submit that the rejection is improper and should be withdrawn because Bunert does not include each and every one of the combination of features recited in claims 22-24.

For example, the rejection relies upon element 10 in Bunert as the substrate recited in claim 22. However, element 10 in Bunert is merely the

bottom of the housing 1 in Bunert. (see col. 2, line 52, to col. 3, line 14).

Applicants can find no indication that bottom element 10 in Bunert is a substrate. Applicants also can find no indication that the flexible member is "produced by moulding operations performed on opposing sides" of bottom element 10 as recited in claims 23 and 24.

Furthermore, as indicated above, applicants have amended claim 22 to recite that the flexible member is "tongue-shaped." Although the electronic card in Bunert is generally flat, it is not tongue-shaped. Therefore, the amended claims 22-24 are not anticipated by Bunert at least for this reason.

Claims 13, 14, and 35-42

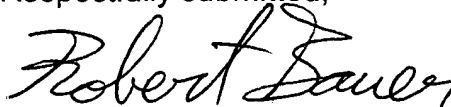
The grounds for the obviousness rejection of claims 13, 14, and 35-42 is set forth in part 8 on pages 5-6 of the Office Action. The rejection evidently relies upon Winstead as applied to claim 5 (on which claims 13, 14 and 35-42 depend) in view of U.S. Patent No. 5,907,477 to Tuttle. Applicant respectfully submits that dependent claims 13, 14 and 35-42 are allowable over the applied references irrespective of the amendments to claim 1. Applicants respectfully traverse the rejection because the grounds of rejection fails to establish even a prima facie case that an antenna assembly having each and every one of the combination of features in claims 13, 14 and 35-42 is obvious from Winstead in view of Tuttle.

Claims 13 and 35-38 recite that the conductive element is disposed on the substrate "by a process of etching." Claims 14 and 39-42 recite that the conductive element is disposed on the substrate "by a process of printing using conductive ink." The rejection states merely that it would have been "an obvious design expedient" to modify Winstead to include these features because Tuttle

"teaches" that they are "notoriously well known in the art" at col. 4, lines 34-39, and col. 7, lines 25-34. Applicants respectfully submit that Tuttle does not provide a teaching or other motivation that Winstead should be modified to include the features recited in claim 13, 14 and 35-42.

Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus Deposit Account No. 01-2135 (367.39057X00) and please credit any excess fees to such deposit account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Robert M. Bauer". The signature is fluid and cursive, with the first name "Robert" and last name "Bauer" clearly distinguishable.

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MARKED-UP VERSION SHOWING CHANGES MADE

1. An antenna assembly for a handheld telecommunication apparatus, comprising:
a conductive element defining a planar antenna; and
a generally flat and planar tongue-shaped flexible member arranged to carry the conductive element and to protrude at a fixed position from a surface of the handheld telecommunication apparatus.

22. A method of producing an antenna assembly comprising the steps of:
arranging a planar antenna element to be disposed on a substrate; and
encapsulating the planar antenna element within a generally flat and planar, tongue-shaped, flexible member by means of an injection moulding process.

57. A handheld telecommunication apparatus comprising:
a planar antenna disposed on a substrate; and
a generally flat and planar, tongue-shaped, flexible member encapsulating the planar antenna and the substrate, said flexible member arranged to protrude at a fixed position from a surface of the handheld telecommunication apparatus.